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EXAMINER

KOSLOW, CAROL M

ART UNIT

PAPER NUMBER

1755

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14

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/751,341

Applicant(s)

HAMPDEN-SMITH ET AL.

Examiner

C. Melissa Koslow

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 15 November 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 80-84, 86-88, 90-98, 100-106, 108-113, 116-120, 122-128, 131-133, 135-138 and 140-142 is/are rejected.
- 7) ☒ Claim(s) 139 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other:

Continuation of Disposition of Claims: Claims pending in the application are 80-84,86-88,90-98,100-106,108-113,116-120,122-128,131-133 and 135-142.

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This action is in response to applicants' amendment of 15 November 2002. The objection to the specification and the 35 USC 112 first paragraph rejections are withdrawn due to the amendments to the specification. The 35 USC 112 second and the objections to the claims are withdrawn due to the amendments to the claims. The art rejections over Ohno et al, Yamanoi et al, Shidlovsky and Chadha in view of Matsuda et al are all withdrawn due to the amendments to the claims. The art rejection of claims 86, 87, 111, 113-116, 118, 120, 127 and 128 over Sanjurjo et al are withdrawn since applicants' provisional application 60/038,262 teaches the subject matter of these claims. Thus they have an effective filing date before that of Sanjurjo et al. Applicants' arguments with respect to the remaining rejections have been fully considered but they are not persuasive.

Since applicants did not submit a petition within two months as required by options I and II of the Notice To File Missing Parts Of Nonprovisional Applicants and by the decision dismissing the petition, only the originally filed papers present in the PTO on 29 December 2000 are part of the application. Applicants are required to renumber the pages and figures of the specification consecutively and to amend the specification to remove all reference to figures 6 and 7.

Applicants have requested that figures 6 and 7 be inserted into the specification because they are identical to figures 6 and 7 in the parent applications. There is no statement in this application stating to incorporate U.S. application 09/141,405 by reference. The inserted continuing data statement on page 1 does not state the cited parent applications are "hereby incorporated herein by reference". The requirements of the Notice To File Missing Parts Of Nonprovisional Applicants discussed above must be maintained.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 80, 82-84, 88, 91-93, 95, 97, 101, 103, 104, 106, 109, 111 and 112 are rejected under 35 U.S.C. 102(e) as being anticipated by Sanjurjo et al.

This reference teaches substantially spherical and monodispersed phosphors having a uniform particle size in the range of about 0.1-10 microns (col. 4, lines 8-10, col. 10, line 67-col. 11, line 1), which means the average size must also be in this range. Since the particles are uniform in size, the particles must have a distribution where at least 90% of the particles have a size that is less than twice the average size. The taught particles are single crystals thus the crystallite size is the same as the particle size. Table 1 teaches phosphors compositions and their uses. Thus the reference teaches substantially spherical and monodispersed phosphors having a uniform particle size in the range of about 0.1-10 microns where the composition is that of table 1. The taught uses include the use in CRTs and FEDS. Thus the reference teaches CRTs and FEDs containing the taught phosphors. The taught CRTs can be those used in televisions (col. 1, line 45) which have an excitation source which has an excitation potential in the range of 20-30 kV or computer screens, which are head-up displays. FEDs are known to have an excitation source which has an excitation potential that is less than about 5 kV and the claimed structure. Table 1 teaches CRTs comprising  $\text{Zn}_2\text{SiO}_4:\text{Mn}$  and  $\text{YSi}_2\text{O}_5:\text{Ce}$ .  $\text{YSi}_2\text{O}_5:\text{Ce}$  are clearly incorrect since these compounds are not phosphors. One of ordinary skill in the art would know the correct formula is  $\text{Y}_2\text{SiO}_5:\text{Ce}$ . The claimed devices read upon those taught.

Claims 81, 98, 100, 105, 107, 108, 124-136, 133, 135 and 136 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sanjurjo et al.

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As stated above, this reference teaches CRTs and FEDs comprising substantially spherical and monodispersed phosphors having a uniform particle size in the range of about 0.1-10 microns. The taught particle size overlaps the claimed ranges. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383 (CCPA 1960). The reference does not teach the amount of dopants in the taught phosphors, but one of ordinary skill in the art would know the amounts are those effective to produce cathodoluminescent. These amounts are generally 20 at% or less, which overlaps the claimed range. The reference suggests the claimed devices.

Applicants argue Sanjurjo et al is not prior art because the claimed subject matter is taught in their provisional application 60/038,262, filed 24 February 1997. Page 40 of the specification of this application teaches cathodoluminescent devices and the phosphors found in these devices. This page teaches FEDs containing ZnS:Ag,Al or Cl, SrGa<sub>2</sub>S<sub>4</sub>:Eu, Y<sub>2</sub>O<sub>3</sub>:Eu and Y<sub>2</sub>SiO<sub>5</sub>:Ce and CRTs containing ZnS:Cu, ZnS:Ag,Au,Cl or Y<sub>2</sub>O<sub>2</sub>S:Eu. This page teaches Zn<sub>2</sub>SiO<sub>4</sub>:Mn is a photoluminescent phosphor. Thus only these claimed embodiments have the effective filing date of 24 February 1997. The rest have an effective filing date of 24 February 1998. The rejection is maintained.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

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A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 80-83, 92, 97-98, 103, 113, 120, 122 and 123 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 137-141 of copending Patent Application Publication 2001/0042853. Although the conflicting claims are not identical, they are not patentably distinct from each other because the device claimed in 2001/0042853 suggests those claimed in the present application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 137-141 is directed to a FED having the claimed structure and comprising oxygen containing substantially spherical phosphors having an average particle size of not greater than about 5 microns and a distribution where at least about 90% of the particles are not larger than twice the average particle size. FEDs are known to have an excitation source which has an excitation potential that is less than about 5 kV and the phosphors used in FEDs are known to be cathodoluminescent. The preferred average particle size is about 0.3-3 microns. The particles are coated where the coating substantially encapsulates the phosphors. The FED also has a pixel layer formed from the phosphors, where the thickness is not greater than about 3 times the average particle size. The phosphor can be  $Y_2O_3:Eu$ . The claims do not teach the amount of europium in the taught phosphors, but one of ordinary skill in the art would know the amount is

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that effective to produce cathodoluminescent. This amount is generally 20 at% or less, which overlaps the claimed range.

Claims 80-82, 87, 90, 92, 97, 98, 102, 103, 113, <sup>114</sup>~~199~~-120, 122 and 123 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 57-67 of U.S. Patent No. 6,153,123. Although the conflicting claims are not identical, they are not patentably distinct from each other because the device claimed in 6,153,123 suggests those claimed in the present application.

Claims 57-67 is directed to a FED having the claimed structure and comprising sulfur containing substantially spherical phosphors having an average particle size of not greater than about 5 microns and a distribution where at least about 90% of the particles are not larger than twice the average particle size. FEDs are known to have an excitation source which has an excitation potential that is less than about 5 kV and the phosphors used in FEDs are known to be cathodoluminescent. The preferred average particle size is about 0.3-3 microns. The particles are coated where the coating substantially encapsulates the phosphors. The FED also has a pixel layer formed from the phosphors, where the thickness is not greater than about 3 times the average particle size. The phosphor can be ZnS doped with Ag, Cl, Cu and mixtures thereof or  $\text{SrGa}_2\text{S}_4\text{:Eu}$ .

Claims 80-84, 86-88, 90-98, 100-106, 108-113, 116-120, 122-128, 131-133, 135-138, and 140-142 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-38 of U.S. Patent No. 6,168,731 in view of Yamanoi et al and Sanjurjo et al.



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Claims 1-38 of U.S. Patent No. 6,168,731 teach substantially spherical cathodoluminescent phosphors having an average particle size of about 0.1-10 microns and a distribution where at least about 90% of the particles are not larger than twice the average particle size. The claimed phosphors are composed of ZnS doped with Au, Al, Ag, Cl, Cu and mixtures thereof,  $\text{SrGa}_2\text{S}_4\text{:Eu}$  and/or Ce,  $\text{Y}_2\text{O}_2\text{S:Eu}$  and/or Tb,  $\text{Zn}_2\text{SiO}_4\text{:Mn}$ , where the amount is 0.05-2 at% Mn and  $\text{Y}_2\text{SiO}_5\text{:Ce}$  and/or Tb. There is no teaching of the devices in which these phosphors are used. Yamanoi et al and Sanjurjo et al teach cathodoluminescent phosphors are conventionally used in CRTs for projection televisions, CRTs for televisions, heads-down displays, heads-up displays, and FEDs. FEDs are known to have an excitation source which has an excitation potential that is less than about 5 kV and the claimed structure and CRTs for televisions are known to have the claimed structure and an excitation source which has an excitation potential in the range of 20-30 kV. Accordingly, one of ordinary skill in the art would have found it obvious to use the claimed phosphors of U.S. Patent No. 6,168,731 in any of the taught cathodoluminescent devices. The claims do not teach the amount of Ce and Tb in the yttrium silicate phosphors, but one of ordinary skill in the art would know the amount is that effective to produce cathodoluminescent. This amount is generally 20 at% or less, which overlaps the claimed range.

Applicants' comments with respect to the terminal disclaimers are noted.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (703) 308-3817. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Bell, can be reached at (703) 308-3823.

The fax number for Amendments filed under 37 CFR 1.116 or After Final communications is (703) 872-9311. The fax number for all other official communications is (703) 872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661 or (703) 308-0662.

cmk  
December 16, 2002

  
C. Melissa Koslow  
Primary Examiner  
Tech. Center 1700